

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

Listing of Claims

Claim 1 (Currently amended): A thermoacoustic apparatus comprising:

a first stack sandwiched between a first high-temperature-side heat exchanger and a first low-temperature-side heat exchanger; [[and]]

a second stack sandwiched between a second high-temperature-side heat exchanger and a second low-temperature-side heat exchanger in the inside of a loop tube, wherein a standing wave and a traveling wave are generated through self excitation by heating the first high-temperature-side heat exchanger, the second low-temperature-side heat exchanger is cooled by the standing wave and the traveling wave, or/and a standing wave and a traveling wave are generated by cooling the first low-temperature-side heat exchanger, and the second high-temperature-side heat exchanger is heated by the standing wave and the traveling wave, wherein a first working fluid is enclosed in the inside of the loop tube; and the thermoacoustic apparatus ~~characterized by~~

~~comprising~~ a mixing device for injecting and mixing a second working fluid different from the [[a]] first working fluid after the first working fluid is enclosed in the inside of the loop tube.

Claim 2 (Currently amended): The thermoacoustic apparatus according to Claim 1,

Amendment under 37 CFR §1.111
Application No. 10/594,275
Attorney Docket No. 063030

wherein the mixing device is a device for injecting the second working fluid, which has a low sound velocity, afterward into the first working fluid, which has a high sound velocity, enclosed in the loop tube in advance.

Claim 3 (Currently amended): The thermoacoustic apparatus according to Claim 1, wherein the mixing device is a device for injecting the second working fluid, which has a large specific gravity, afterward into the first working fluid, which has a small specific gravity, enclosed in the loop tube in advance.

Claim 4 (Currently amended): The thermoacoustic apparatus according to Claim 1, wherein the mixing device is a device for injecting the second working fluid, which has a large Prandtl number, afterward into the first working fluid, which has a small Prandtl number, enclosed in the loop tube in advance.

Claim 5 (Original): The thermoacoustic apparatus according to Claim 1, wherein the loop tube comprises a plurality of linear tube portions, which stand relative to the ground, and connection tube portions connected between the plurality of linear tube portions, and the mixing device is disposed above the center of the loop tube.

Claim 6 (Original): The thermoacoustic apparatus according to Claim 1, wherein the loop tube is configured to be bilaterally symmetric and comprise a plurality of linear tube portions, which stand relative to the ground, and connection tube portions connected between the plurality of linear tube portions, and the mixing device is disposed at the center of the upper

Amendment under 37 CFR §1.111
Application No. 10/594,275
Attorney Docket No. 063030

connection tube portion.

Claim 7 (Currently amended): The thermoacoustic apparatus according to Claim 1, wherein a sound detection device for detecting generation of a sound is disposed, and injection of the second working fluid is started when the generation of the standing wave and the traveling wave is detected by the detection device or when a variation in the acoustic wave state is detected.

Claim 8 (Currently amended): The thermoacoustic apparatus according to Claim 1, wherein a pressure measuring device for measuring a pressure in the loop tube is disposed, and injection of the second working fluid is stopped when a predetermined pressure is measured with this pressure measuring device.

Claim 9 (Currently amended): The thermoacoustic apparatus according to Claim 1, wherein the mixing device stops the injection of the second working fluid on the basis of the variation over time of heat output from the second high-temperature-side heat exchanger or the second low-temperature-side heat exchanger.

Claim 10 (Currently amended): The thermoacoustic apparatus according to Claim 1, wherein the loop tube includes the first ~~the working fluid resulting from mixing comprises a~~ working fluid lighter than air and the second ~~[[a]]~~ working fluid heavier than air, and wherein an opening portion for releasing the second working fluid heavier than air is disposed at the lower end of the loop tube.